FAA AVIATION NEWS

MARCH 1973

COVER:
Putting out fires the modern way.
See page 6.

FAA AVIATION NEWS

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CONTENTS / March 1973

3 New FSS Frequency Plan

4 Postriders in the Sky Again

6 Chicago's Flying Firemen

7 Status of FARs

8 Down and Squawking

10 Famous Flyers: Matty Laird, Super Sleuth

12 Making Airports Better Neighbors

14 News Log: Special VFR Ban Sought at Midway . . . New Rules Proposed for IA Mechanics . . . GA Accident Rates Down in 1972 . . . Prefab Towers . . . Crashworthiness Rule Proposed

The smell of oil and leather. Page 4

Doolittle does it again. Page 10

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The pilot who navigates with outdated sectional charts, or who does not keep abreast of the latest notices in the Airman's Information Manual, may be in for a communication surprise one of these days. He may find, upon calling an old familiar frequency, that he has not reached the station he wanted at all. In some cases he may get a "wrong number"; in others there may be no answer.

The reason is that a number of important frequency changes have been made under the new Flight Service Station VHF Radio Frequency Plan. Because of the constant shortage of frequencies for aviation use, particularly those in the 100 MHz spacing bracket, FAA is continually analyzing the amount of use the various channels are receiving and adjusting frequency assignments for maximum benefit to pilots.

In this recent change, several frequencies receiving little use have been re-assigned. Although there will be no reduction of services or loss of frequencies, some of the channels between 122.0 and 123.65 are now being assigned to different stations. Changes have been incorporated on current aeronautical charts, and highlights of the new plan as it appears in Part 3 of AIM are as follows:

- **122.2** KHz will be available at all FSS's for enroute simplex communications (transmit and receive) and all stations will continue to have **121.5** for emergency use. *Since these two frequencies are everywhere available, they do not appear on charts.*
- At airports where a full-time FSS and a part-time control tower are located on the field, airport advisory service will now be provided by the Flight Service Station on the tower frequency after the tower has closed for the day. (Formerly this frequency would be non-responsive when the tower closed, and the pilot would have to switch to a FSS channel.)
- At non-tower airports with a FSS on the field, airport advisories will be provided on **123.6.**
- Control tower receive-only service will now be provided only on **122.5** at "qualifying terminal locations"—those where 50 or more such calls are received per month or where there is a special need for the service. ("Receive only" frequencies are for use with aircraft radios having a limited transmission capability. Such radios are gradually falling into disuse.) The other two frequencies formerly used for this purpose **(122.4 and 122.7)** have been re-assigned for use as simplex frequencies for FSS's.
- At some Limited Remote Communications Outlets (LRCO) or remoted VORs, the pilot will transmit on **122.1, 122.05,** or **122.15,** and listen on the VOR frequency. At certain remoted VORs simplex service is available on an FSS frequency, as indicated in AIM or on the sectional charts.
- Wherever it exists, Enroute Flight Advisory Service (formerly Enroute Weather Advisory Service or EWAS) is available on **122.0,** and the new call sign is "Flight Watch," replacing "EWAS." This service is now in use at four FSS's on the west coast, at Oakland, Los Angeles, Portland and Seattle, and is expected to be expanded nationwide in the next few years.

The change in FSS frequencies has triggered a new system of designating FSS's and VORs on sectional charts. Gone are the old familiar shadow boxes which indicated that certain standard FSS frequencies (121.5, 122.0) were available. Under the new system flight service stations are indicated by a heavyline box. If the FSS has the same name, and is co-located with a VOR, the VOR frequencies and identifications also appear inside the box. If there is no VOR at that immediate location, or if it has a different name, only the FSS will appear within the box (example: *Rocky Mount FSS*). In either case communication channels appear above the box.

Remoted VOR are shown in a thin-line box, with VOR frequencies inside the box. Communication frequencies available at the site are shown above the box, and the controlling FSS name is underneath the box in brackets.

FSS's which offer Enroute Flight Advisory Service are designated by solid triangles in the top corners of the name box.

All of these new symbols will appear on current aeronautical charts, with a complete explanation on the information data panel of each chart. By keeping up to date on frequency changes you can spare yourself the time lost and the vexation of transmitting into dead air.

New sectionals show FSS in a heavy-line box. If the VOR is co-located, "VOR" appears above the box (inset). If the VOR is remoted, it appears in a thin-line box. Nav frequencies are always shown inside the box, com frequencies above it (except 122.0 and 121.5, which are in use at all stations and are not shown on charts.) Controlling FSS name is beneath box in brackets.

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The New FSS Frequency Plan

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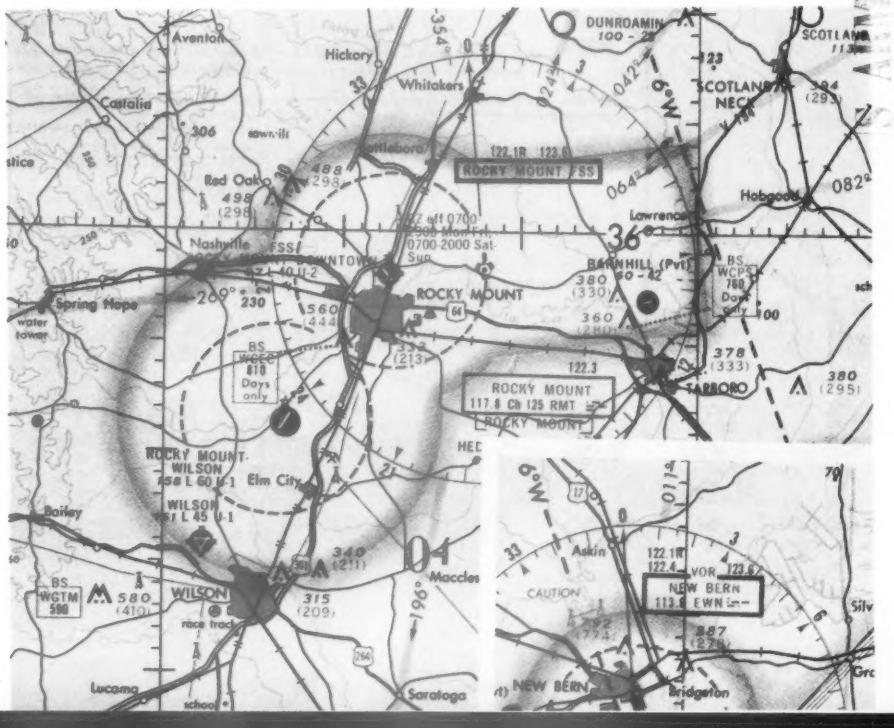

POSTRIDERS in the SKY AGAIN

Standard 1920 mail plane, a 115 mph DeHavilland 4, was the air mail pilot's trusty steed.

The five year period from 1967 to 1972 is being referred to in some quarters as the "second golden age of air mail", and not without good reason. The heroic image of the air mail pilot—long since laid to rest in the history books—has made an unexpected come back.

The most romantic epoch in the history of American aviation is usually thought as the pioneer days of the Air Mail Service, founded by the Post Office in 1918. Over the next eight years a tremendous wealth of experience was gained in the art of flying as well as in aircraft manufacture. The basic air routes of the nation were established and the practicality of regularly scheduled air transportation was proven. The stimulus and the goal was the network of mail routes from California to the East Coast worked out by United States postal authorities, who acquired the aircraft, airports and ground stations; and hired and trained the pilots.

Maintaining regular schedules in all kinds of weather was an incredible feat in the early 1920s, when the aircraft were mainly open-cockpit single engine airplanes prone to every kind of mechanical failure imaginable, and with little protection for the pilot from the elements. There are accounts on record of pilots in the Rocky Mountain region landing their aircraft in an open field, remaining there just long enough to thaw out numbed fingers on the engine cowling, and continuing on their way through bitter winter nights. Tales of remarkable flying adventures were legion, and the air mail pilot soon became a romantic hero of the skies in the imagination of the public—a handsome, booted, uniformed daredevil who flew in the lap of Death with a smile on his face.

The standard aircraft was the DeHavilland 4, a WWI biplane with a 115 mph cruise speed, 500 lbs. payload, and a 350 mile range. All airplanes had landing lights and carried parachute flares for emergencies. To help the pilot's forward vision at night, it became a standard practice to extend the exhaust pipes aft of the cockpit.

But there was nothing standard about the pilots. They were all highly individualistic, courageous, skillful and proud of their ability to cope with all the hardships that weather, terrain and mechanical vicissitudes could offer. Getting the mail through became a matter of honor and pride. Ground support consisted of 17 "Radio Service Stations" scattered from coast to coast, and 89 emergency landing fields. NAVAIDS consisted of 100 electric en route coded beacon lights and 405 automatic gas rotating beacons. Radios were low-powered and undependable.

The demands of the job—keeping up a regular day and night service winter and summer—took a fearful toll. Over an eight year period, when pilots flew some 13 million miles, 32 air mail pilots were killed in service. There were 345 serious injuries and over 6,500 forced landings. In the earlier years of this era, most of the crashes were due to mechanical failure, but as the equipment improved, weather became the dominating factor in inflight mishaps.

Despite the danger and the discomfort from exposure to noise, leaking oil and bitter cold, flying the air mail had a wide appeal. The pilots liked the independence of their operation and the glamor—they were actually authorized to flag down trains in order to transfer mail, in the event they were forced down en route. Some of the nation's greatest aviators, like Charles Lindbergh, Speed Holman and Jimmy Murray cut their flying teeth in the Air Mail Service. Murray, who flew the leg over the Rockies from Cheyenne to Omaha, logged 4,380 hours—tops for an Air Mail pilot.

After 1926 the Post Office no longer hired pilots, but contracted out air mail routes, on bid, to commercial operators (with exception of one brief interlude in 1934, when Army pilots were used). With the growth of commercial air travel, more and more air mail contracts were let to the emerging air carriers, and the glamorized image of the air mail pilot as a lone aviator began to fade into history.

However, in the mid 1960s the picture changed again. The abrupt shift in air carrier operations from propeller aircraft to jets reduced scheduled service to smaller communities. At the same time, air carrier night operations were cut back steadily as

service was tailored to public demand.

From the point of view of the Postal Service, night flights were a necessity in order to maintain the continuity of mail movement and to shorten delivery time. The Service also desired to extend air mail operations into less populated cities. Consequently in 1967 a renewed emphasis was placed on contracting air mail to small operators, principally air taxis.

Over the ensuing five year period, the air taxi air mail business grew from estimated revenues of $180,000 in 1967 to $20 million in 1972. Some 17,000 additional communities were able to receive direct air mail service. There were 160 air taxi air mail routes in 1972, with an average round trip length of 581 miles. The largest number of flights has been operating out of Chicago's Midway Airport.

For the first five years, the safety record of air mail operations steadily improved; the rate of all air mail accidents per 100,000 hours dropped from 10.54 in 1968 to 4.9 in 1971. This compares favorably with a rate of 6.14 accidents per 100,000 hours for all forms of air taxi operations, and a rate of 18.2 for all of general aviation in 1971. However, the accident rate rose in 1972 to 6.2 per 100,000 hours.

This record is impressive when you consider that many air mail aircraft are still relatively small—mostly light twins, a few are small jets, even a sprinkling of single engine prop planes in Alaska.

The problems of night flying in all kinds of weather are still present. In many instances the air mail pilot operates out of a small airport where he may have all the responsibility for keeping his aircraft properly maintained as well as for flight planning, and perhaps fueling; also, he may have to load and unload mail and handle all of the paperwork involved in the operation. If he is not feeling well, he may have to scurry around to find a qualified replacement pilot on short notice. If his airplane is ailing he may have to pay a mechanic overtime if another suitable aircraft is not available. Keeping the aircraft in tiptop shape is doubly important for a scheduled night operation. Usable emergency landing areas are far harder to find at night, which means that a relatively minor inflight problem for the day flyer could mean a serious emergency in the hours between 10:00 p.m. and 6:00 a.m., when most of the air taxi air mail is moved.

The success in reducing accidents, despite the known rigors of this kind of flying, is credited to stepped-up surveillance on the part of FAA and the Postal Service, whose field inspectors make certain that maintenance and operating safety procedures are adequate for each contractor.

Also of great importance to safety is the highly sophisticated present day FAA air traffic service. Modern NAVAIDs have come a long way from the crude beacons of the 1920s, and FAA is now able to offer the night pilot radar and/or radio guidance along his entire route, as well as efficient weather briefing. Statistics show that pilots who fail to follow prescribed procedures are the ones who get into trouble.

A classic example in 1972 was the case of the pilot who did not get the required ten hours of rest before flying his night schedule and fell asleep some 75 miles short of his destination. Luckily the aircraft landed itself with minimal damage to property and pilot. For the latter it was a rude awakening to the fact that "moonlighting" is not the way to move the mail safely.

In spite of the obvious hardships of the trade, air mail flying continues to attract pilots. Some like the variety of the work, the independence, the freedom for daytime activities, the opportunity to build up flying time with remuneration. Others like the challenge to individual resourcefulness, the lack of boredom.

Whatever the reason, the role of general aviation in moving the mail is growing by leaps and bounds, and will probably continue its expansion as long as the safety record continues to improve.

The air mail pilot of today is no longer a heroic, booted and uniformed figure; and flying at night, he is little observed or glamorized by the public, but his efforts are helping to re-establish the importance of the individual operator in the field of air transportation. ■

During the past half-century air mail service has progressed from hand-loaded open cockpit biplanes to conveyor-loaded jets. Below—Captain Jim Burton and crew pause while unloading air mail from their Falcon fan-jet at O'Hare Airport in Chicago. Burton flew jets in the Navy.

Photo by William M. Pitchford

CHICAGO'S FLYING FIREMEN

Over land, over sea, Chicago's Air Rescue Unit has an instant response to emergencies.

When the Learjet started its takeoff roll at Meigs Field, on a bitter day in January, Chicago fireman John Kerechek just happened to be watching from the FAA control tower. Kerechek is a pilot assigned to the Fire Department's Air Rescue Unit based at Meigs and he sensed that the sleek business jet was in trouble the moment it started a slide that was to end in the icy waters of the nearby yacht harbor.

Before the craft with eight people on board struck the water, Kerechek and his copilot, Phil Kondur, were dashing for the Rescue Unit's pontoon-equipped Bell 47G4A. Within seconds they were over the ditched jet, whose occupants were hastily spilling into the cold Lake Michigan water. As they eased their craft onto the surface in a 20-knot wind, one of the jet passengers sank beneath the waves. Kondur quickly leaped onto a pontoon, grabbed the man as he surfaced, and hung on.

Minutes later, all eight of the survivors were safe on shore, although at one point in the rescue Kerechek had to struggle desperately to maintain control of the helicopter as he taxied to shore towing five of the struggling men.

This was one of the more spectacular rescues performed by the Chicago Fire Department's Air Rescue Unit, and it won for pilot Kerechek an FAA award for heroism and airman ingenuity. There have been many other dramatic rescues by the Unit, but just as important, although less publicized, are the numerous day-to-day missions over Chicago's expressways and, in the summer, over Lake Michigan. The Fire Department helicopters are ready to go to work in a matter of seconds whenever help is needed; they are invaluable when time is of the essence and surface transportation is difficult. The Unit uses a Sikorsky S55B, which carries six litters, two attendants and two pilots; a Bell Jet *Ranger* with two litters, pilot and attendant; and the Bell 47G4A, a three-place aircraft with floats and outside litters.

Although police use of helicopters is rapidly expanding, the Chicago Fire Department helicopter service was the first of its kind. It is constantly being studied by officials from cities in this country and abroad as interest grows in the use of these aircraft for rescue and emergency purposes in congested urban areas. Chicago's Unit began almost by accident back in 1961, when Robert J. Quinn, the city's Fire Commissioner who was also a helicopter pilot, was getting some solo time aloft and spotted a burning church. From the air he directed fire equipment to the blaze and then kept the ground-based firemen advised of the best vantage point for fighting the flames.

Over the years, as the Unit has grown in size and responsibility, a number of firemen have learned to fly on their own so they could sign on with the airborne unit; and ex-military pilots have joined the Department to learn fire fighting so they could apply their flying skills to civilian use.

An excellent example of the helicopter's value in an emergency came to light during the big snow of 1967 in Chicago, when the fire department helicopters were almost the only vehicles moving. Lt. George Tannehill, Commander of the Air Rescue Unit, flew without stopping from 7 a.m. to 4 p.m. one day because his relief pilot could not reach the airport. Neal Callahan, now FAA Public Affairs Officer for the Great Lakes Regional Office in Chicago, flew the small Bell for six hours straight—delivering vital food and milk as well as medicine and blood to hospitals in the area.

A more recent incident of outstanding helicopter utilization was seen during the October 1972 collision of two commuter trains in Chicago, when 44 persons were killed and more than 350 were injured. Within two minutes after the fire alarm sounded the three Air Rescue helicopters were at the scene of the crash.

As the two nearby hospitals became overburdened with emergency patients, the choppers began airlifting injured survivors to the University of Chicago Hospital—only two minutes away by helicopter but virtually impossible to reach otherwise because roadways were jammed with curious spectators and frantic relatives trying to reach the crash site. The helicopters carried victims to the hospital and brought back extra stretchers and needed medical supplies. One chopper served as an aerial command post, directing traffic on the surface and in the air. For seven hours the three helicopters continued flying, until finally the last victim was removed from the wreckage. Then they stood by until it was determined they would not be needed to aid in lifting the shattered commuter cars from the tracks.

The Chicago Air Rescue Unit pilots work closely with the air traffic controllers at Meigs Airport, and occasionally with those at O'Hare and Midway. With flying machines that are ready to go in 15 seconds there is not much time to communicate, but the tower always manages to clear the airspace for the flying firemen, give radar vectors if needed to an emergency, a hospital, and back home. If the situation demands it, as in the tragic train wreck, the controllers will clear air traffic from the area for the emergency helicopters, and will notify the Coast Guard to act as backup when the choppers are flying over Lake Michigan.

The FAA Airport Development Aid Program (ADAP), which helps fund fire fighting equipment and facilities for airports, is paying part of the $481,000 cost of a new Air Rescue Unit hangar, crew quarters and maintenance shop at Meigs Field. Other communities around the country are preparing to follow Chicago's example and add a helicopter or two to the traditional bell-ringing, siren-screaming fleet of fire engines. The shortest distance between trouble and help is clearly in the air. ■

Far right—during commuter train wreck, aerial ambulances saved precious minutes by airlifting victims to hospitals, bringing back stretchers and supplies to crash scene. Right—workman injured during building demolition is rescued from rooftop.

FAR's are grouped into volumes, as listed below.

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Part 171	Non-Federal Navigation Facilities (7)	

* Changes to individual airspace designations and airways descriptions, individual restricted areas and individual jet route descriptions are not included in the basic Parts 71, 73 and 75, respectively, because of their length and complexity. Such changes are published in the Federal Register and are included on appropriate aeronautical charts.

** Due to the complexity, length, and frequency of issuance, airworthiness directives, enroute IFR altitudes and standard instrument approach procedures are published in the Federal Register and are not included in basic Parts 39, 95 and 97. In addition, enroute IFR altitudes and instrument approach procedures are depicted on aeronautical charts.

Standard instrument approach procedures are published in the Federal Register by reference to FAA documents which are available for examination at the Rules Docket (GC-24) and the National Flight Data Center, in FAA Headquarters, Washington, D. C. and at FAA Regional offices and Flight Inspection District Offices.

Down and S

How to keep a lost airplane from be

There is a pilot who is alive today because he misinterpreted a Federal Aviation Regulation.

The FAR in question (91.52) is based on an Act of Congress making it mandatory for virtually all general aviation planes to be equipped with an emergency locator transmitter (ELT) by December 30, 1973.

The pilot is William Chambers of Santa Fe, N.M., who misread that FAR and concluded that an ELT had to be installed by December 30 of *1972*. In early December of last year he had an FAA approved locator transmitter installed in his *Luscombe*. Two weeks later, on December 16, Chambers crashed in the 10,000 foot levels of the Sangre De Cristo Mountains, northeast of Santa Fe. He survived the accident with only cuts and abrasions and two fractured ribs, but it was then five o'clock in the morning, with two feet of snow on the ground and the temperature near zero. Chambers huddled near his crashed plane and desperately hoped someone would find him before he froze.

At the moment of impact the ELT he had installed two weeks previously was activated and continued sending out its distinct signals on the emergency frequencies. Early in the day the signal was picked up by search aircraft, and just before nightfall they located Chambers on the mountainside. The area was inaccessible by foot, but a rescue helicopter picked him up and returned him to Santa Fe. Rescuers doubted whether the downed pilot could have survived through the night on the frigid mountain. Chambers will always be grateful he misread that FAR.

This story has a happy ending, but over the years there have been many tragedies which might have been averted if the downed aircraft had an ELT on board. In 1966, for instance, a family of four, flying in a light plane, crashed in the mountains of California. All survived the crash, but all four persons ultimately perished of starvation and exposure. Sixteen year old Carla Olen kept a diary of their pitiful struggle to stay alive while waiting for rescuers who never came. Six months later a deer hunter finally happened on the scene and found the bodies. Carla's diary recorded that she had lived for two months after the crash.

In 1965, Dr. W. Randolph Lovelace and his wife survived the crash of their rented plane in Colorado. The CAP conducted a widespread search for the missing plane—one of the CAP pilots was killed during the rugged search mission—but nevertheless the Lovelaces died of exposure in the winter cold before their plane was sighted.

On February 21, 1959, Drs. Miller and Quinn crashed in the Green Mountains of Vermont. Their bodies were not discovered until May 5, but Dr. Miller also kept a diary and it revealed that both persons had lived for four days after the crash, waiting in vain for assistance until they perished in the winter cold. The last line of Dr. Miller's diary said: "Goodby all."

And in October of 1972, the newspapers were filled with stories of the missing Cessna in Alaska which was carrying U.S. Representatives Hale Boggs and Nick Begich. At this writing, over four months later, the plane has still not been located, and NTSB has stated that the plane was not equipped with an ELT.

An ELT is basically a compact, lightweight, self-contained transmitter which sends out an emergency signal on the two emergency frequencies—121.5 MHz for civilians, and 243.0 MHz for military. Various models have been in use for about 10 years, particularly in Alaska where there was a desperate need for a locating device to find missing aircraft in the vast northland. They have conclusively proved their worth. Consider these few examples which occurred in Alaska within just a few months in 1970.

- A helicopter with eight people on board made a forced landing near a small lake 10 miles southwest of Skwentna. That same afternoon an Air Force plane returning to Anchorage heard the emergency signal. The pilot located the aircraft, landed and picked up the passengers, and proceeded on to Anchorage.
- Another helicopter on a flight from Cordova to Anchorage had to make an emergency landing on a beach after running low on fuel. When the plane was reported overdue a search was started, and one of the search aircraft heard the helicopter's ELT while flying at an altitude of 19,000 feet. A light aircraft descended to a lower altitude, sighted the downed aircraft, and dropped fuel so that the pilot could continue.
- An airplane equipped with skis had flipped over on its back on the Chickaloon Flats south of Anchorage. When a light plane in the vicinity picked up the ELT signal and notified the Center, rescue planes were able to locate the missing aircraft and its uninjured occupants within 25 minutes.

Time on the Wing

However, it is not only Alaskan pilots who can benefit from the ELT. Figures from the Aerospace Rescue and Recovery Service indicate that the problem of missing airplanes occurs all across the land. With the general use of the ELT in the continental United States there is an excellent chance that all missing aircraft will be located, and located quickly. An FAA study has shown that 50% of all persons retrieved alive from downed aircraft situations are recovered within the first 12 hours of going down, and another 25% are recovered within the next 12 hours. The probability of safe recovery dwindles sharply after that.

Unfortunately there can be delays in the search process. In many cases an emergency is not identified until the aircraft is reported as overdue at its destination, and thus many hours may elapse before a report is made. There might be further delays while a check is made of other airports to determine whether the pilot may have landed safely. Only after this check is made is the Civil Air Patrol alerted to begin its search. If the downed plane does not have an ELT on board, the search area can cover hundreds of square miles. If a pilot on a flight plan has an ELT on board, search planes can immediately head in his direction.

Another major benefit from the general use of the ELT will be the vast saving in time and man hours now spent in search and rescue. The cost for this single year's operation has been estimated to be around $25 million, but the true cost will never be known because so many private planes

d Squawking

from becoming a needle in a haystack

take part in search operations. The Canadian Forces Rescue Coordination Report stated that they have been able to reduce the number of search hours dramatically as the result of the increased use of ELT. In 1970 in Canada there was a total of 4,430 search hours, but in 1971 that total had been reduced to 945 hours.

The required use of the ELT does not mean, of course, that survivors will now be found in every missing aircraft, because some of them will not survive the crash, but it does mean that virtually all downed aircraft will eventually be recovered. Even in the case of the pilot's death, this is an important consideration.

The plane which is never found produces its own special kind of tragedy. Between 1964 and 1971 there was a total of 940 missing planes in the United States, and of that number 117 have never been found. The shock of a missing plane is enormous for the pilot's family: the hours of waiting, then the days, the uncertainty, and as the weeks pass the waning hope of recovery. And finally there is the anguish of never really knowing what happened.

In addition to these emotional factors, there are also important financial considerations at stake. Often, estates cannot be settled for missing people until seven years have elapsed and a presumption of death established. Many of the estates of the people involved in those 117 missing planes have not yet been settled, causing problems with insurance and family finances. Hence the need to find missing aircraft, whether or not there are survivors.

Approved Equipment

Regulations say an ELT must be installed by December 30, 1973 in all aircraft—except turbojets, agricultural planes, and training aircraft operated within 20 miles of point of flight origin. The FAA has issued a TSO (Technical Standard Order) which covers the design and operational characteristics of approved transmitters. The label on your purchase should read: FAA, TSO C91.

This TSO means that your ELT will activate automatically at an impact of 5 Gs with a duration of 11 milliseconds or more. The emergency signal will be sent out simultaneously over the two emergency frequencies. The superimposed audiotone has a range of not less than 700 Hz within the range of 1600 and 300 Hz. It is repeated two to four times a second, with a distinctive throbbing wail, much resembling police sirens used in Europe.

TSO C91 requires a transmitter to have enough power so that after 48 hours of transmission at -20°C (-4°F) it still has an output of 75 mw peak effective radiated power. Some of these sets continue to transmit for days: in the Chambers episode mentioned earlier the ELT transmitted for 93 hours.

Despite the fact that the power output of most ELT's is relatively small, the signal is designed to carry well over 100 miles on a line of sight basis. Varying conditions of atmosphere and topography will effect the transmission, but an ELT with a power output of 250 mw has been picked up 250 miles away. In a perfectly ideal situation, an ELT which was transmitting from flat terrain might send up a signal to 10,000 feet, which would mean that it could infiltrate a total sky area of 30,000 square miles.

Although there are two general types of approved ELT, fixed and portable, the portable one must be "attached" to the airframe—not carried on the person. The wisest place to install your ELT is in the tail area (vertical fin, horizontal fin and tail cone) which remains intact in over 95% of forced landings and crashes. The battery should be changed after 50% of useful life as designated by the manufacturer, usually from one to one and a half years after going into service.

A satisfactory and approved ELT can be purchased for about $120. Some versions sell for as high as $3000. Since an ELT will not operate if it is seriously burned in a fire or submerged under water, the more expensive sets attempt to minimize that risk. Some will eject from the airplane on impact, and can float indefinitely.

Supposing you have had an ELT on board for some time, prior to TSO C91—does it meet the requirements of the new regulations? Perhaps, but you should check with the manufacturer. If your unit was approved under the old TSO C61 it will not be necessary to purchase a TSO C91 approved unit until after December 30, 1975, providing the unit was installed before October 21, 1971 and transmits on 121.5 and 243 MHz.

At present the emergency frequencies are constantly monitored by FAA's 328 flight service stations and 304 towers, FAA aircraft, all airborne military aircraft, the CAP, the Coast Guard, and coastal vessels.

FAA is working on the development of a wider monitoring system, including low cost airborne monitors. Another proposal is a network of ground-located VHF receivers installed at strategic locations across the country. (Special receivers have already been designed and are available for this purpose.) An orbiting satellite that would pick up all ELT signals and relay them to a central control point is also being considered. In the meantime the general aviation fleet is urged to monitor the emergency frequencies as often as possible, as a self-preservation precaution.

Regular monitoring of the emergency frequency could save a life. Pilots should switch to 121.5 MHz on a regular basis—perhaps twice an hour when they listen to the weather broadcast. Or carry on board an inexpensive portable receiver.

If you do pick up that distinctive wail of an ELT emergency signal, contact the nearest flight service station or tower or center immediately. Give them your position, await instructions, and continue to monitor the signal.

Pilots who are not trained in search procedures are not encouraged to wing off on a solo rescue mission, as they could become lost themselves or run out of fuel while absorbed in searching. Many search planes now have a crash position indicator, a VHF direction-finding unit which works basically on the principle of an automatic direction finder, with a needle that points to the transmitting ELT.

One final suggestion. Why not make the same mistake as William Chambers? He installed his ELT many months before it was actually required by the FAR, and it saved his life. Who knows, you might need yours before next December 30. ■

Famous
Flyers

"Matty" Laird, Super Sleuth

Above—Matty in the LC-DW500 *Super Solution* in which Jimmy Doolittle won the 1931 Bendix Trophy. Right—Laird and his *Baby Biplane* in 1915. Below—the Laird *Boneshaker* was powered by a 45 h.p. Anzani radial engine.

The Laird mid-wing monoplane was constructed from barrel hoops and redwood scraps; its muslin-covered wings—surreptitiously built in the boiler room of a downtown bank—were treated with hide-glue diluted with formaldehyde. It was powered with a 12-horsepower engine made from automobile and motorcycle parts. It had no ailerons, no instruments, and no good reason to fly. But it did—and thereby provided its creator with his first flying lesson.

This marvelous machine, which took to the air September 15, 1913, was the product of 17-year-old Emil Matthew "Matty" Laird, a $4.50 per-week office boy who had left school after the eighth grade to help support his widowed mother, sister and two brothers.

Reared on Chicago's south side, Matty became addicted to flying after witnessing a flight by early bird pilot Walter Brookins at Grant Park in 1910. Laird, of course, had no money for flight instruction but after studying the Wright pusher, Otto Brodie's *Farman* and a couple of locally-built craft, he concluded that he could build a flying machine of his own, aided by his brother Charles and some inspired scrounging. Once he had a plane, he would simply teach himself to fly it. After all, the Wrights had done it that way, had they not?

Matty paid for his homemade engine on the installment plan. He haunted the hangars at Chicago's Cicero Field, watching aircraft builders at work and acquiring bits of scrap wood and metal for his project.

Some indication of the contemporary state of the art may be gleaned from the historical note that it was a common practice at Cicero Field to determine engine thrust (measured in pounds) by fastening an iceman's scale between the tailskid and a fence post and revving up the engine. The young Laird went through the same procedure, for form's sake, although he had no idea what to do with the scale reading.

Matty's aircraft was completed in May, 1913. The initial flight of both man and machine, which was attempted concurrently, had to be postponed four months after an unfamiliar force (propeller torque) sent Matty into a ground loop on his first take-off run and broke up a wing.

But his next try was successful. That is, his plane ballooned into the air about 20 feet when he jerked-back on the stick and he had therefore "soloed". True, he did not attempt a turn via his wing-warping control —in fact, he immediately nosed-down and landed as quickly as possible. He did nose over on the roll out, but Matty felt it was a reasonably successful flight by the standards of that time, and he was soon at work designing another, improved machine.

It was called the *Baby Biplane*, and by the time it was ready to fly, in the early spring of 1914, Matty had more or less completed his self-instruction course in the art of flying. Which is to say that, from straight-ahead lift-offs of a few seconds duration at three-to-five feet above the surface, he had progressed to 360-degree circuits of the field at an altitude of 250 feet, and with duration limited only by fouled spark plugs or exhaustion of his 30-minute fuel supply, whichever came first.

The Laird *Baby Biplane* was framed from spruce and covered with Irish linen treated with nitrate dope (a French product newly introduced into the U.S.), and possessed a propeller handmade by Ole Flottorp, who operated a little shop just across the street from Cicero Field. This time Matty also had ailerons, although his instrument panel consisted of only a dollar pocket watch (for timing his fuel supply). In sum, the *Baby Biplane* was soundly conceived if a bit Spartan in its appointments.

Launched into Flight

Matty was now launched on his 30-year career as pilot, designer and planemaker par excellence. Bill Pickens, the entrepreneur then booking exhibition pilots like Lincoln Beachey, heard of Laird's flights in the tiny biplane and offered to keep Matty busy at roughly 50 times the pay he had been receiving at the bank where he was office boy. Laird's scrounging days were over.

He appeared as a barnstorming pilot at county fairs all over the Midwest during the next three years, but spent the winter months working at the Sloan Aircraft plant in Boundbrook, N.J., primarily for the experience under skilled craftsmen. In the meantime he also built a more advanced biplane for his own use. His mechanic and assistant during this period was George "Buck" Weaver, a boyhood friend and later one of the founders of WACO. Matty's brother Charles also contributed much to the construction of early Laird planes.

Matty has always referred to his third airplane as "My Anzani-powered machine," but to his contemporaries who chanced to ride in that two-place craft, it was the "Boneshaker", a sobriquet bestowed as a result of the unbelievable vibration imparted by its 45-horsepower, six-cylinder Anzani radial engine. Nevertheless, the Anzani gave

Matty sufficient power to perform several feats of aerial derring-do—including a "loop-the-loop"—and this increased his stature as both pilot and plane builder. Only a handful of American; exhibition pilots prior to WWI possessed both the skill and a machine with enough structural integrity and power to perform a loop.

Matty spent the winter of 1916 in Memphis, Tenn., where as the danger of America's involvement in the war in Europe grew more apparent, Captain Arthur Christie of the U.S. Signal Corps was organizing one of several new Army flying schools. Matty aided in the assembly and testing of the group's Curtiss JN-4 *Jennies*. Then, in March, 1917, he went to San Antonio, Texas, to test a new tractor biplane built by Walter Brock for Katherine Stinson, the celebrated "Flying Schoolgirl". It was there that Matty's career —and life—almost came to an early end.

Matty put the machine into an accelerated stall at about 2,500 feet and it dropped into a flat spin. Since almost nothing was known about spins of any kind at that time (except that they always ended in a crash), Matty invested the frantic moments left to him in as many bold remedies as he could think of. Nothing worked. Fortunately, a tree absorbed some of the impact as the plane spun in.

Laird was in the hospital for months. He suffered numerous broken bones, almost lost a leg, and ended up with an improperly knitted elbow. This eliminated his chance for military service in WWI, and as the war drew to an end he established himself as a plane builder in a hangar on Chicago's new Ashburn Field. A coterie of Wichita, Kansas, businessmen, interested in establishing a modest airplane manufacturing plant, contacted Matty about his reported plans for a marketable commercial airplane.

Below—top photo shows line of Laird *Swallows* with OX-5 engines, which were built in Wichita in 1920. Lower photo-Laird *Commercial* was offered with choice of engines from 200 to 450 hp; this LC1B300 had a J-6 Whirlwind, 330 hp.

Whether or not Matty actually had such plans, he managed to produce them in jig time. The drawings Matty presented were of an OX-5-powered, three-place double-bay biplane (perhaps best described now as a "Jenny replacement") that had nice lines for its day, and which Matty said could be sold for $6,000. Its only competition was the Curtiss *Oriole*, just announced by the Curtiss Aeroplane & Motor Corporation of Garden City, N.Y. The Wichita group, headed by newly-rich oil driller Jacob M. Moellendick, was satisfied; the E. M. Laird Company of Wichita was born on January 1, 1920.

The first Laird *Swallow* was test-flown just three months later. Among the 20 or so employees were Lloyd Stearman, a draftsman, and pilot-salesman Walter Beech. Among the customers was barnstormer Clyde Cessna.

Laird built 43 *Swallows* at Swallow Field (29th and Hillside) before Matty left Wichita, late in 1923, after a disagreement with the company's majority stockholder. He returned to Chicago and opened a factory on Ashburn Field that was, albeit small, wholly owned by himself.

Matty started over with half a dozen employees and an all-new design, the first of the famed Laird *Commercials*, a very clean, single-bay biplane with a fully-cowled OX-5 engine. It took to the air early in 1924, and several were sold. But the E. M. Laird Airplane Company of Chicago did not become a real success until Matty could match his sleek airframes, with their hand-rubbed finishes, with powerplants that drew from these craft their true potentials. When the Wright Whirlwind radials of 200-420 horsepower, and the Pratt & Whitney Wasp Junior of 450 horsepower came on the civilian market in 1925 and 1927 respectively, the "Thoroughbreds of the Airways" resulted, and Laird aircraft—among the fastest (190 mph) production open-cockpit biplane ever offered—firmly established Matty as a quality aircraft builder during the late Twenties and early Thirties.

Laird never achieved the volume, in terms of units sold, enjoyed by Eaglerok, Waco or Travel Air. He refused to accept outside capital, and concentrated on quality. This meant that a Whirlwind-powered Laird sold for $11,000, while comparable Wacos and Travel Airs were priced at $7,335 and $9,100. The maximum number of employees at the Laird Airplane Company never exceeded 85. Matty's brothers worked with him; and M. W. Green, R. L. Heinrich and Roall Hoffman made up his engineering staff. In 1930 the Goodrich Rubber Company's Aviation Division decided to challenge Walter Beech's Model R *Mystery* ship in the 1930 Thompson Trophy Race. Goodrich went to Laird—just *three weeks* before the race.

It was a handshake deal: Matty would design and build the airframe; Goodrich would furnish a P & W Wasp engine (actually, loaned by P & W), prop, wheels, and instruments. The racer would be called the Laird LC-DW300 *Solution* (the "solution" to Beech's "mystery"). And "solution" it proved to be.

A Winning Solution

Three weeks was not enough time, of course. But somehow, the *Solution*, out-of-rig and lacking its final coats of paint, was flown across town to Chicago's Curtiss-Reynolds Airport (where the 1930 National Air Races had been in progress all week) minutes before the start of the Thompson. Its racing number had been hastily applied with whitewash, and Charles "Speed" Holman was at the controls.

Holman won the Thompson with an average speed of 201.9 mph; Jimmy Haizlip, in a Travel Air *Mystery* racer, was second at 199.9 mph.

The following year, Major Jimmy Doolittle won the Bendix air race in a Laird *Super Solution*, built in 60 days. It was a highly-streamlined, single-place biplane, and its souped-up P & W Wasp Junior engine produced 535 horsepower at 2,400 rpm.

The *Super Solution* flew from Burbank, Calif., to Cleveland in 9 hours and 10 minutes, for an average speed of 223 mph. Doolittle immediately took off again for Newark, to add the transcontinental record to his credit (11 hours, 16 minutes).

The depression of the Thirties took its toll at the Laird Airplane Company as elsewhere, but Matty continued to turn down outside investors. He built a few *Speedwings* and filled-in with airline maintenance contracts. He also re-worked Roscoe Turner's *Special* into a Thompson-winning racer. In July, 1941, Matty closed his plant. He spent the WWII years as factory manager for an aircraft sub-contractor. Subsequently he retired to Boca Raton, Fla., where he still lives with his wife Elsie.

Laird has always been known for his amazing ability to get more speed out of an aircraft with less horsepower than any other builder. But the "magic" behind the Laird formulas for winning racers was probably less a matter of design ingenuity than stubborn insistence on quality workmanship—a stubbornness which is reflected today in the rigorous Federal standards for safety in aircraft manufacturing. ■

Making Airports Better Neighbors

The Federal government has made a commitment to improve the quality of life. Part of this pledge is to reduce the noise generated by the nation's commercial jet aircraft and business jets. This was enunciated in Public Law 90-411, passed in 1968. That mandate from Congress amended the Federal Aviation Act by authorizing the FAA to control both aircraft noise and sonic boom. However, it also directed that noise abatement and control be achieved within the bounds of technical practicability and economic reasonableness while not compromising safety.

Government decisions by the legislative and executive branches are not made in a vacuum, but through a complicated process of consultation with industry. The airports which serve the public are governed by municipal authorities of varying structures. The airlines are private companies operating in a semi-regulated atmosphere under the eye of not only the FAA, but also the Civil Aeronautics Board. Military aircraft also use civil aviation facilities and their needs are far different from those of commercial users. There are numerous aviation industry associations in Washington who carry on a constant dialogue with the government in behalf of their members. Not only federal, but state and local funds, too, are invested in the aviation system.

The public is both the principal beneficiary of air service and recipient of some of its undesirable by-products—notably aircraft engine noise and its impact on the environment.

The 1968 legislation gave FAA the authority it needed to put a lid on the escalation of noise. In November 1969 the agency, as its first major step, added Part 36 to the Federal Aviation Regulations, establishing noise standards for the certification of new turbojet aircraft, which limited the noise levels for given aircraft weights.

As an additional feature of the regulation, to insure that the growth of noise was in fact stopped, it was stipulated that no existing turbojets could be modified if the modification resulted in an increase in noise.

The results of the Part 36 regulation are well-known. Aircraft certificated under the regulation include the DC-10, L-1011, 747, F-28 and the Cessna *Citation*, which are substantially quieter than previous aircraft in their categories.

However, a less well-known fact is that almost 100 noise certifications actions and modifications to older jet aircraft have been processed to prevent further escalation of noise.

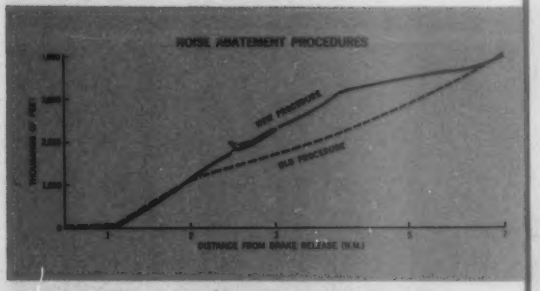
In 1970, the Airport and Airway Development Act was passed. Procedures to ensure that airport projects are environmentally sound were made preconditions to federal planning and airport assistance funds. Thus the ability to forestall future problems between airports and the surrounding communities was strengthened. An example of an airport developed under this philosophy is the Dallas-Fort Worth Regional Airport, which will encompass 17,400 acres. By contrast, Los Angeles International Airport, one of the Nation's busiest terminals, is built on 3,000 acres. Los Angeles has been selectively purchasing noise affected property and adding it to its acreage. In addition it has offered matching funds to noise affected schools for soundproofing. The goal is to contain clearly unacceptable noise levels within airport controlled boundaries.

The goal can be met by purchasing sufficient land and exercising proper land use controls. This may not be easy, and it may be expensive when dealing with a new airport, but it is much more difficult and may be prohibitively expensive when dealing with existing airports. New aircraft are getting quieter, but there has been a gnawing problem of what else can be done about the aircraft certificated prior to December 1969, and about the airports built before 1970.

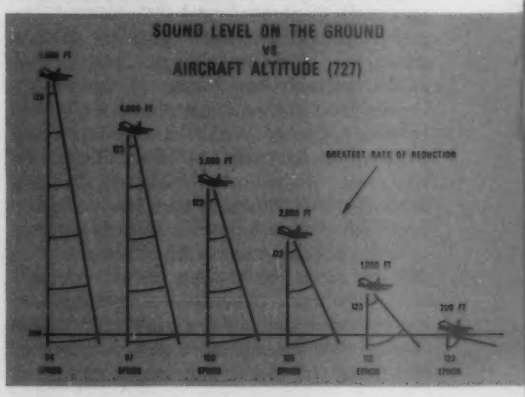
The FAA's Office of Environmental Quality, established in January 1971, is moving to curb the noise problems created in the past and affecting citizens and communities today.

This, of course, translates into doing something about the noise levels of today's jets, both commercial and business. It means changing some of the flight patterns and trying to change land use patterns in the vicinity of airports that are now incompatible with their neighbors.

The problem of reducing approach noise has been more knotty than reducing departure noise. With today's navigational equipment, operational deviations are difficult and preferential routings cannot be used for noise abatement. However, with



Above—flight profile of Boeing 707 takeoff shows how new procedure puts plane at higher altitudes earlier in climb, thus reducing noise impact on communities beneath flight path. Beyond seven miles planes are above 4,000 feet, and no longer a major noise source. Below —charting effective perceived noise decibels at different elevations helps analyze problem.



the development of systems such as microwave instrument landing systems, such flexibility will be possible.

Current measures undertaken to reduce aircraft noise include:

1. The "Keep 'em High" project. Keeping aircraft higher on approach, in conjunction with use of preferential runways and routings, helps minimize noise around airports.

2. "Get 'em High Earlier." Noise reduction of up to five decibels has been afforded some communities by procedures which get the aircraft higher above ground earlier in the takeoff climb.

3. Reduced flaps on landing. Considerable relief to persons on the ground has been afforded by airline use of lower landing flap settings when permissible and a lesser approach flap setting throughout the approach. Noise reduction is up to seven decibels at six miles distance from the airport.

4. Higher VFR enroute flight levels. A recent Advisory Circular (AC-91-36) urges VFR pilots to maintain an en route altitude level of at least 2,000 feet whenever possible, and to plan approaches and departures at airports to avoid prolonged low-level flight.

5. Reducing noise levels of certificated aircraft. FAA has proposed a rule that would require new production models of aircraft certificated before 1969 (including business jets) to meet the Appendix C Part 36, noise standards in the near future.

6. Fleet noise levels. This concept, based on the average noise production of an airline's fleet, would initially deter airlines from increasing the proportion of noisier aircraft in service, and in future years require airlines to reduce aircraft noise to a technologically feasible limit in future years.

7. Quieter Part 36 aircraft. Within the next few months FAA will be proposing a rule to lower the permissible noise levels for Part 36 aircraft produced in the future.

Young generation jets certificated under FAR Part 36 (such as Cessna *Citation*, below, Lockheed 1011, page 12, DC 10, 747 and F-28) have "quiet" engineered into design.

Pilot BRIEFS

■ PRACTICING INSTRUMENT APPROACHES alone in the cockpit is not a recommended procedure. The pilot who is conscientiously looking around for other aircraft, as required in VFR conditions, will have little time to learn anything helpful about instrument techniques. If he concentrates on the instruments, while flying solo, he is likely to compromise safety. In-flight instrument practice calls for the presence of a qualified safety pilot—a passenger will not adequately serve this purpose.

■ PILOT FLIGHT AND GROUND SCHOOLS certificated by FAA as of June 30, 1972 are included in an updated FAA publication, which lists schools by name, address, certificate number and ratings and special courses authorized. Copies of AC 140-2G, "List of Certificated Pilot Flight and Ground Schools" are available free from FAA/DOT Distribution Unit, TAD-484.3, Washington, D.C. 20591.

■ I. A. RENEWALS. Holders of an Inspection Authorization who are qualified to renew their certificate for 1973 should contact the nearest FAA field office to learn the date and place of the required annual renewal meeting scheduled during the month of March.

■ PARTS INDEX. A handbook listing aircraft parts approved by FAA as of July 1, 1972, has been published by the agency. Copies of the "Index of Materials, Parts and Appliances Certified Under the Technical Standard Order System" may be obtained free, while supplies last, from FAA/DOT Distribution Operations, TAD 484.3, Washington, D.C. 20591.

■ FIFTH ANNUAL NATIONAL AVIATION SYSTEM PLANNING REVIEW CONFERENCE of FAA will be held at the Washington Hilton Hotel, Washington, D.C., May 21-23, 1973. Topics will include Landing Systems, Navigation, Air Traffic Control, Airports and Community Involvement in their Planning, Short Haul, and Performance Assurance. Registration fee for the conference is $15, payable in advance (checks payable to FAA) or at the door, with an additional charge of $5 for those who wish copies of the 1973 Ten Year Plan, Policy changes, and Summary Reports. Registrations are being accepted by FAA, AAV-10, Washington, D.C. 20591, and should include name, address, company, area of interest.

■ WHO PAYS FOR WHAT when an FAA facility must be relocated because of airport improvement or changes is spelled out in a revised advisory circular. AC 150/5300-7B defines responsibilities of the airport owner and FAA for funding and accomplishment of work, and describes the reimbursable agreement to be negotiated by the two parties.

U.S. ARMY AVIATION SCHOOL LIBRARY

FAA Proposes Crashworthiness Rule for Small Planes

FAA has proposed airworthiness and operating rule changes for small airplanes (under 12,500 lbs.) which would require installation and use of shoulder harness on new airplanes and on certain airplanes already in use. Also under this proposal, which would change Parts 23 and 91 of the Federal Aviation Regulations, the cockpit and cabin areas of new airplanes would have to be free of safety hazards, such as sharp edges, protuberances, and hard surfaces.

The shoulder harness installation requirement would apply to new models of small planes whose manufacturers apply for type certificates after the effective date of the rule, and to all planes manufactured after one year later, regardless of application date. The harnesses would also be required for previously manufactured planes if they have structural provision for such attachment. Existing aircraft without such provision will not be affected.

Where installed, fastening of harness as well as seat belt would be required by all occupants for takeoff and landing, and by crew members whenever they are in their stations. Crew harnesses would have to be designed to provide freedom of movement for the performance of flight duties.

Comments on Notice #73-1 must be submitted by April 30 to FAA, AGC-24, Washington, D.C. 20591.

SVFR Ban Sought at Midway

Potential hazards to air safety have prompted FAA to propose eliminating Special VFR Operations for fixed wing aircraft in the Chicago Midway Control Zone.

In publishing the Notice of Proposed Rulemaking, FAA pointed out that Chicago Midway underlies the Chicago Terminal Control Area's 3,000 foot floor, and that aircraft entering the Midway Control Zone under SVFR are sometimes operating at altitudes used by IFR arrivals and departures. Furthermore, since the Midway Control Zone overlies heavily populated areas, pilots are required by law to maintain at least a 1,000 foot clearance over the highest ground obstacle; when the ceiling is less than 1,000 feet, it may be impossible to operate legally, and the safety of aircraft and persons on the ground could be imperiled.

Comments on the proposal (#73-6) should be sent to FAA/DOT, Office of the General Counsel, Attention: Rules Docket AGC-24, 800 Independence Ave., S.W., Washington, D.C. 20591. Deadline is April 23.

INSULATED TAXIWAYS. At Anchorage International Airport some 1.4 million board feet of styrofoam was used to insulate against frost-heave, a common problem in Alaska. Two-inch thick plastic foam insulation boards were staggered and connected with six-inch wooden skewers. The foam was sandwiched between thick layers of gravel sub-base, topped with four-inch asphalt paving surface.

Rule Changes for IA Mechanics

FAA has proposed changes clarifying Part 65 of the Federal Aviation Regulations to require aircraft mechanics holding an Inspection Authorization to have a current aircraft mechanic certificate with airframe and powerplant ratings when acting as an authorized inspector.

Also, the area where the holder could operate would be limited to that covered by the local FAA District Office, and he would be required to notify FAA if he changed his base of operation. The proposal would require the holder to keep a record of each inspection he performs.

Comments on the proposal (#73-4) must be submitted by May 7, 1973 to FAA, AGC-24, Washington, D.C. 20591.

Prefab Control Towers Installed

First of 64 prefabricated FAA control towers has been commissioned at Chino, Calif. Remainder of the towers will be completed at a rate of one per week, with all 64 expected to be in operation by mid-1974. Tower consists of an 18-foot high cab and catwalk atop four 10-foot modules which are fabricated at the factory in El Paso and hauled to the site by truck. Lower four floors are used for offices, maintenance, training and storage. Design allows for tower to be heightened to 90 feet.

General Aviation Accident Rates Declined in 1972

Fewer general aviation accidents were reported in 1972 compared with 1971, according to the National Transportation Safety Board. In 1972, when 3.4 billion miles were flown in 27.3 million hours there were 4,230 accidents, as compared to 4,641 in 1971. The rate of accidents in general aviation per 100,000 hours flown fell from 18.2 to 15.5. Although the number of fatal accidents increased in 1972, when compared to hours and miles flown, the fatal accident rate also shows an improvement.

ACCIDENTS, FATALITIES, RATES
U.S. GENERAL AVIATION
1962-1972

	Accidents					Accident Rates			
						Per 100,000 Aircraft-Hours Flown		Per Million Aircraft-Miles Flown	
Year	Total	Fatal	Fatalities	Aircraft-Hours Flown (000)	Aircraft-Miles Flown (000)	Total	Fatal	Total	Fatal
1962	4,840	430	857	14,500	1,964,586	33.4	2.97	2.46	0.219
1963	4,690	482	893	15,106	2,048,574	31.0	3.19	2.29	0.235
1964	5,069	526	1,083	15,738	2,180,818	32.2	3.34	2.32	0.241
1965	5,196	538	1,029	16,733	2,562,380	31.1	3.22	2.03	0.210
1966	5,712	573	1,151##	21,023	3,336,138	27.2	2.73	1.71	0.172
1967	6,115	603	1,333##	22,153	3,439,964	27.6	2.72	1.78	0.175
1968*	4,968	692	1,399	24,053	3,700,864	20.6	2.86	1.34	0.186
1969	4,767	647	1,495##	25,351	3,926,461	18.8	2.55	1.21	0.164
1970	4,707	640	1,309	26,030	3,207,127	18.1	2.46	1.47	0.200
1971	4,641	665	1,373	25,512	3,143,181	18.2	2.61	1.48	0.212
1972P	4,230	692	1,398##	27,300EST	3,400,000EST	15.5	2.53	1.31	0.204

P Preliminary

* Commencing January 1, 1968, the definition of substantial damage was changed, therefore, fewer accidents were reported. Care should be used in comparing with similar data for prior years.

Includes air carrier fatalities (1966-2, 1967-104, 1969-82, 1972-5) when in collision with general aviation aircraft.

National Transportation Safety Board

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• A & P vs. ARB

As the holder of an A & P license (airframe and powerplant mechanic) I was upset to learn that the license is not as "popular" as I expected in some places, especially in the United Kingdom. They accept the ARB license instead. How would you compare the ARB and the FAA A & P licenses?

K. T. Choi
Kowloon, Hong Kong

The duties of the British Air Registration Board (ARB) have now been assumed by the British Civil Aviation Authority (CAA). An FAA-issued A & P mechanic certificate, and the British CAA-issued Aircraft Maintenance Engineer license are relatively similar; both permit the holder to be employed in international or domestic air transport maintenance. The British Civil Aviation Authority representatives in Washington, D.C. informed us that they do not question the technical competence of FAA-certificated A & P mechanics, but to make sure that the mechanic is thoroughly familiar with applicable British aeronautical regulations they require him to obtain the CAA license.

• Miss who?

In the November 1972 issue of FAA AVIATION NEWS you show on page 5 a Terminal Radar Service Area chart of the St. Louis area. The river crossing 20 NM perimeter northwest of Lambert Airport is labelled the Missouri, but I believe it is the Mississippi River.

Morgan Rowland Gilbert
Yakima, Wash.

It sure is. The chart in the Airman's Information Manual, which was reproduced in our magazine, has now been corrected accordingly. Thank you very much for calling attention to the error.

• For Short Speeches

I appreciated the letter from Mr. Peterson (Van Nuys Control Tower) in the November 1972 Flight Forum in which he suggested a concise but clear taxi clearance request using only seven words: "Sparrow 577 Xray, clearance from hangar three." I would like to see additional suggestions from FAA personnel—and maybe pilots, too—for optimal phraseology for often-used communications.

William R. Englander
Mill Valley, Calif.

Publication of Mr. Peterson's letter in November was not meant to imply that his suggested shortened initial ground call-up should replace the standard time-tested phraseology spelled out for pilots in Airman's Information Manual. Unless a specific tower has issued other instructions (as busy Van Nuys apparently has done) pilots should stick to procedures prescribed in AIM Part I ("Airport Operations; Taxiing"). Initial ground contact should thus include aircraft identification; location on the airport; type of operation planned (VFR or IFR); and point of first intended landing.

This gives the controller the information he needs to expedite your departure with a minimum of questions and answers; it can incidentally, still be conveyed in one short sentence. The thing to be avoided is tying up the frequency with a series of "uh" and "let me see" phrases as you soliloquize over a live mike. Know what you are going to say before you key the mike button, and then say it in as few words as possible.

• Students in the TCA

In a November 1972 news story about the proposed Boston terminal control area (TCA) you state that "an air traffic control clearance is required to fly in a TCA and the pilot must have at least a private pilot certificate." As I understand Part 91 of the FARs, a private license is required for *landing or takeoff* from an airport in the TCA. Thus students can legally fly within the TCA unless they are landing at a Group I airport. Please clarify. Also, is Boston a Group I or Group II TCA? Would you list the current and proposed TCAs in each group?

William D. Y. Rich
Ayer, Mass.

Student pilots are not prohibited by law from operating within TCA airspace if they are not taking off or landing within a Group I TCA; however, a student would be wise to avoid flying into a TCA. Most students do not have the experience to operate in an environment which requires the acceptance and precise execution of air traffic control clearances.

See AIM Part I for complete details. Following are locations of existing and proposed TCA's:

Group I

Atlanta, Chicago, Washington, New York, Los Angeles, San Francisco, *Boston,* Miami (proposed), Dallas/Ft. Worth (proposed).

Planned Group II

Cleveland, Denver, Detroit, Houston, Kansas City, Las Vegas, Minneapolis, New Orleans, Philadelphia, Pittsburgh, Seattle, St. Louis.

• Welcome to El Paso

Your excellent article on VFR Terminal Radar Service (November 1972) was much appreciated. Although you did not mention El Paso as one of the locations where this service is offered, I personally have used Stage III at El Paso. Even before Stage III was available I always requested radar advisories on my VFR flights, and rarely have I found the approach and departure controllers too busy to provide it. My compliments to all of those professionals who are adding to the safety and pleasure of general aviation flying.

George Emerson
Phoenix, Ariz.

Since preparation of our article a number of airports (including El Paso) have been added to those offering Stage III service and the list is growing constantly. For latest information check Part 3 of Airman's Information Manual, which is published monthly.

• Underground Signposts

Why are underground pipe lines depicted on aeronautical charts? Of what value is this to pilots in aircraft?

A. R. Boileau
San Diego, Calif.

Since the ground surface immediately above the underground pipeline is kept clear of trees and underbrush for purposes of maintenance and inspection by the utility companies, the line is often clearly visible to a pilot flying over it. Therefore it can help the pilot orient himself.

• Gravity and Gimbals

In your article "Inertial Navigation" in the November 1972 issue, you refer to the gimbals as isolating the platform and accelerometers from effects of gravity. This is not the function of the gimbals. Rather, they isolate the platform from the rotation of the aircraft (i.e. "base" motion.)

Nothing can isolate the accelerometers from the effect of gravity. The accelerometers sense gravity and vehicle accelerations alike. Gravity is, in effect, "subtracted out" by the Schuler tuning of the system. This requires that a gravity model, known beforehand, be carried in the system. This is true whether or not the system has gimbals.

Furthermore, you do not show the subtraction of gravity from the accelerometer output in your schematic of the system. The double integration of accelerometer outputs will not work if this very important step (Schuler tuning) is not carried out.

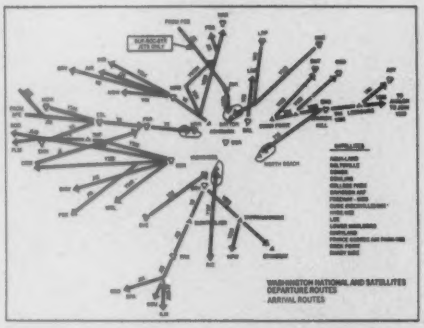
On the whole, I find your magazine both interesting and informative. It's a real bargain.

William A. Drohan
Bedford, Mass.

• Getting to the Point

In the October 1972 issue I learned of ARTCC bulletins showing arrival/departure transition points in terminal areas ("The Straightest Distance between Two Points"). Why are these routes not published in the SID/STAR books, in a volume, or on the area charts A1/A2?

Herbert Rosenthal
Washington, D.C.



Arrival and departure route bulletins are developed by FAA facilities (towers, centers, etc.) to assist pilots in planning routes compatible with the normal traffic flow in the area and are normally available in nearby flight service stations. These facility bulletins are numerous, and sometimes quite lengthy; therefore a bound volume containing all of them would be cumbersome and one more publication for the pilot to carry around. To print this data on area charts would result in confusion and clutter on the chart, particularly in areas where terminals are closely spaced. Thus it is more practical for the pilot to obtain the bulletins he needs from the facilities involved or from the local FSS or GADO.

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Dozing pilots should realize

Airplane controls need human eyes.

Idea contributed by Al Barnes
Rocky Mountain Regional Office, Denver, Colo.